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CABLE TELEVISION DELIVERY SYSTEMS, filed December 2, 1993; and
U.S. Patent No. 5,559,549, entitled DIGITAL CABLE HEADEND FOR CABLE TELEVISION
DELIVERY SYSTEM, filed December 2, 1993.

IN THE CLAIMS:

Please amend claims 1, 34, 35, 38, 62, 87, 108, 119, and 127 as follows:

1. (Amended) A method for providing programming in a television delivery system, comprising:

packaging the programming at a television delivery center, wherein the packaging
includes at least one program;

generating menu information related to the programming packaging, wherein the menu
information include menu data for interactive services and data services;

transmitting the menu data for the interactive services and the data services to viewers;

providing the menu information to terminals using the television delivery system;

storing the menu information in the terminals;

displaying the menu information as programming menus, wherein a programming menu
is displayed on a first portion of a display coupled to a terminal and wherein the programming
menu is displayed using a television channel;

choosing a program from the displayed programming menu;

receiving a program selection based on the program chosen from the displayed
programming menu;

switching the terminal from the television channel carrying the programming menu to a
television channel carrying the chosen program, wherein the switching step is completed in
response to a single control function; and

displaying the chosen program on the display.

34. (Amended) A method for generating a television program menu for use by viewers in
selecting programs based on program line-up information, comprising:

obtaining and storing the program line-up information for each program, the program
line-up information including program name, program start time, program duration, program
category and program price;

generating menu data based on the program line-up information, wherein the menu data

include menu information for interactive services and data services;
transmitting the menu information for the interactive services and the data services to viewers;
creating a program control information signal using the generated menu data;
transmitting the programs to the viewers; and
transmitting the program control information signal simultaneously with the programs.

35. (Amended) The method of claim 34, wherein the program control information signal also contains information for identifying channels for the interactive services and the data services available to the viewers, the method further comprising:

collecting information on the interactive and the data services available;
inventorying the interactive and the data services to be made available to the viewer;
assigning the channels for the interactive and the data services;
determining a method of upstream transmissions for the interactive and the data services;
and
creating menu data for the interactive and the data services for transmission to the viewers.

38. (Twice Amended) A method for selecting a program from a broadcast television system, comprising:

generating program menu data related to programming packaging, wherein the menu data include menu information for interactive services and data services;
transmitting the menu information for the interactive services and the data services to viewers;
providing the menu data to a terminal in the broadcast television system;
creating a menu from the menu data, wherein the menu includes a window;
scrolling the menu to a desired program; and
selecting the desired program for display on a display coupled to the terminal, wherein the selected program is displayed in response to a single control function.

62. (Amended) A system that provides programming selection from a menu, comprising:

a television delivery system that packages programming, wherein the programming package includes at least one program, generates menu information related to the programming, and provides the programming package and the menu information to subscribers, and wherein the menu information include menu data for interactive services and data services;

a terminal operably connected to the television delivery system, the terminal comprising:

a memory that stores the menu information;

a processor connected to the memory that processes the menu information to generate the menu, and

a control operably connected to the processor that provides program selection instructions to the processor; and

a display operably connected to the terminal that displays the menu and the programming, wherein the terminal switches to a channel carrying a program selected from the menu in response to a program selection instruction, the program selection instruction being a single control function.

87. (Amended) An apparatus that provides for television program selection from a displayed menu, comprising:

a terminal that receives television programs and menu data related to the television programs, wherein the menu data include menu information for interactive services and data services;

a display coupled to the terminal that displays the menu data and the television programs; and

a control that scrolls through the menu data, cursors through the menu data, and selects a desired television program from the television programs, wherein when the desired television program is selected, the terminal switches to a channel carrying the selected television program and the display displays the selected television program.

108. (Amended) An apparatus for selecting programs, comprising:

a receiver that receives programs and program control information related to the received programs, wherein the program control information include menu information for interactive services and data services;

a memory coupled to the receiver that stores the program control information;
a processor coupled to the receiver and the memory, the processor processing the program control information to generate a program menu, the program menu stored in the memory, wherein the program menu provides a list of available programs for viewing;
a display coupled to the processor that displays the program menu and the programs; and
a control coupled to the processor, the control providing program selection signals, wherein the program selection signals select a program for viewing on the display, the program selected from the list of available programs shown on the program menu.

119. (Amended) An apparatus for selecting programs, comprising:

a receiver that receives the programs and program information related to the received programs, wherein the program information include menu information for interactive services and data services;
a display that displays a program menu based on the program information; and
a control, operable to select a program for viewing, the program selected based on the displayed program information, wherein a program available for selection includes a subscription to a speciality channel, and wherein operation of the control starts the subscription to the speciality channel.

127. (Amended) A method for selecting programs, comprising:

receiving programs and program information related to the received programs, wherein the program information include menu information for interactive services and data services;
transmitting the menu information for the interactive services and the data services to viewers;
displaying a program menu based on the program information; and
ordering a subscription to a program using a remote control, the program listed in the program menu, wherein the subscription includes a subscription to a speciality channel.

PENDING CLAIMS

- Sub C17* 1. (Amended) A method for providing programming in a television delivery system, comprising:
- packaging the programming at a television delivery center, wherein the packaging includes at least one program;
 - generating menu information related to the programming packaging, wherein the menu information include menu data for interactive services and data services;
 - transmitting the menu data for the interactive services and the data services to viewers;
 - providing the menu information to terminals using the television delivery system;
 - storing the menu information in the terminals;
 - displaying the menu information as programming menus, wherein a programming menu is displayed on a first portion of a display coupled to a terminal and wherein the programming menu is displayed using a television channel;
 - choosing a program from the displayed programming menu;
 - receiving a program selection based on the program chosen from the displayed programming menu;
 - switching the terminal from the television channel carrying the programming menu to a television channel carrying the chosen program, wherein the switching step is completed in response to a single control function; and
 - displaying the chosen program on the display.
- B2* 2. The method of claim 1, further comprising transmitting menu templates to the terminals, wherein the menu information is menu data and wherein the terminals create the programming menus based on the menu data and the menu templates.
3. The method of claim 1, wherein the menu information is provided to the terminals as the programming menus.
4. The method of claim 1, wherein the television delivery system includes a cable television headend.

5. The method of claim 1, wherein the television delivery system includes a backyard satellite receiver.
6. The method of claim 1, wherein the television delivery system includes an operations center.
7. The method of claim 6, wherein the operations center transmits the menu information and the programming to the cable television headend, and wherein the cable television headend inserts local programming into the packaging and local menu information into the menu information.
8. The method of claim 1, wherein the menu information includes date, time of day, channel and descriptive information for at least one program.
9. The method of claim 8, wherein the descriptive information includes a program title, a program rating and a program run time.
10. The method of claim 1, wherein the choosing step comprises:
operating a control to highlight a program on the programming menu; and
operating the control to designate the highlighted program as the chosen program.
11. The method of claim 10, wherein a portion of the programming menu extends beyond a screen size of the display, the choosing step further comprising operating the control to scroll to the portion of the programming menu that exceeds the screen size.
12. The method of claim 11, wherein the control is a remote control, the remote control including cursor buttons to navigate the programming menu, scroll the programming menu and highlight the programs, and a go button to designate the chosen program, and wherein an operation of the go button completes the single control function.
13. The method of claim 12, wherein the remote control is one of an infra red control and a

B2
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~~radio frequency control~~

14. The method of claim 1, further comprising updating the programming menus as programming packaging changes.
15. The method of claim 1, wherein the programming menu includes a video window, the video window used to display a video.
16. The method of claim 15, wherein the video includes advertisements targeted to the terminal.
17. The method of claim 16, wherein the advertisements are targeted based on viewer profile information.
18. The method of claim 17, wherein the viewer profile information includes one of programs watched information and viewer demographic information.
19. The method of claim 15, wherein the advertisements are displayed prior to display of the chosen program.
20. The method of claim 1, wherein the displayed program includes an overlay menu, the overlay menu further including a connection to alternate programming.
21. The method of claim 20, wherein the alternate programming includes access to an Internet service provider.
22. The method of claim 21, wherein a viewer accesses the Internet service provider by selecting the Internet service provider from the overlay menu and operating a go button on a control to connect to the Internet service provider.
23. The method of claim 1, wherein the menu data is provided over a cable television cable.

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24. The method of claim 1, wherein the providing step further comprises:
sending the menu information to an online address; and
coupling the online address to the terminals, wherein when the online address is accessed,
the menu information is displayed on the display as the programming menus.
 25. The method of claim 24, wherein the chosen program is selected by selecting a program
from the programming menus accessed through the online address.
 26. The method of claim 25, wherein when the chosen program is selected, the terminal
switches from the online address to a channel carrying the selected program.
 27. The method of claim 1, wherein the chosen program includes one of a single event, a
multiple event and a subscription.
 28. The method of claim 27, wherein the subscription includes a specialty channel
subscription and a specialty program subscription.
 29. The method of claim 28, wherein the specialty channel subscription includes monthly and
annual subscriptions.
 30. The method of claim 28, wherein the specialty channel subscription is a first-run movie
channel subscription.
 31. The method of claim 28, wherein the specialty program subscription is a sporting event
subscription.
 32. The method of claim 31, wherein the sporting event subscription includes a full season
subscription and a partial season subscription.
 33. The method of claim 31, wherein the sporting event subscription includes a favorite team

subscription

34. (Amended) A method for generating a television program menu for use by viewers in selecting programs based on program line-up information, comprising:

obtaining and storing the program line-up information for each program, the program line-up information including program name, program start time, program duration, program category and program price;

generating menu data based on the program line-up information, wherein the menu data include menu information for interactive services and data services;

transmitting the menu information for the interactive services and the data services to viewers;

creating a program control information signal using the generated menu data;

transmitting the programs to the viewers; and

transmitting the program control information signal simultaneously with the programs.

35. (Amended) The method of claim 34, wherein the program control information signal also contains information for identifying channels for the interactive services and the data services available to the viewers, the method further comprising:

collecting information on the interactive and the data services available;

inventorying the interactive and the data services to be made available to the viewer;

assigning the channels for the interactive and the data services;

determining a method of upstream transmissions for the interactive and the data services;

and

creating menu data for the interactive and the data services for transmission to the viewers.

36. The method of claim 35, wherein the interactive services include an Internet service provider.

37. The method of claim 35, further comprising gathering of program watched information from viewers, and wherein the organizing step further comprises:

targeting a television program; and
managing the yield of the programs watched information for the targeted program so that the targeted program yields higher programs watched information.

38. (Twice Amended) A method for selecting a program from a broadcast television system, comprising:

generating program menu data related to programming packaging, wherein the menu data include menu information for interactive services and data services;

transmitting the menu information for the interactive services and the data services to viewers;

providing the menu data to a terminal in the broadcast television system;

creating a menu from the menu data, wherein the menu includes a window;

scrolling the menu to a desired program; and

selecting the desired program for display on a display coupled to the terminal, wherein the selected program is displayed in response to a single control function.

39. The method of claim 38, wherein the generating step comprises:

packaging programs; and

generating program control information related to the packaged programs, wherein the program control information includes the menu data and wherein the window is scalable.

40. The method of claim 39, wherein the programs are packaged by program category.

41. The method of claim 39, wherein the programs are packaged by date and time of broadcast.

42. The method of claim 39, wherein the programs include digital programs.

43. The method of claim 38, wherein the menu data is provided in a program control information signal.

44. The method of claim 43, wherein the program control information signal is provided in a vertical blanking interval.

45. The method of claim 43, wherein the program control information signal is provided in a dedicated channel.

46. The method of claim 38, further comprising:
generating menu templates;
providing the menu templates to the terminals; and
storing the menu templates in a memory of the terminal.

47. The method of claim 46, wherein the terminal creates a menu from the menu data, the menu displayed according to the menu templates.

48. The method of claim 46, wherein the menu templates include an introductory menu template, a home menu template, major menu templates and submenu templates, and wherein the displayed menu includes an introductory menu, a home menu, major menus and submenus.

49. The method of claim 48, wherein the major menus are arranged according to program categories, and wherein the major menus display programs available for viewing.

50. The method of claim 49, wherein the display of programs available for viewing comprises a list of program titles.

51. The method of claim 49, wherein the display of programs available for viewing includes a program rating.

52. The method of claim 38, wherein the menu is displayed on a television display, wherein portions of the menu exceed a display size of the television display, wherein the portions of the menu that exceed the display size are accessed by scrolling with a remote control, and wherein the window displays a video.

53. The method of claim 52, wherein the selected program is selected by selecting a program title using a remote control.

54. The method of claim 53, wherein the remote control is one of an infrared control and a radio frequency control.

55. The method of claim 54, wherein the remote control comprises cursor buttons and a go button, and wherein the cursor buttons are operated to scroll the menu and to highlight the desired program title and the go button is operated to select the highlighted program title.

56. The method of claim 52, wherein the selected program is selected by selecting a program title using a control on the terminal.

B2
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57. The method of claim 48, wherein the submenus include program description menus, notification menus, escape menus, and return to program menus.

58. The method of claim 57, wherein the program description menus include a program description, a program preview video, and a cost to order and wherein the program preview video is displayed in the window.

59. The method of claim 58, wherein the program description menus further include an order button, a return to menu button and a return to broadcast television button, wherein a program is ordered by highlighting the order button using a cursor and selecting the order button using a go button.

60. The method of claim 59, wherein the cursor and the go button are included in a remote control operably coupled to the terminal.

61. The method of claim 57, wherein the escape menu includes a time to program start, a cancel button and a return to broadcast television button, wherein operation of the cancel button

ends a selected program without charge, the cancel button displayed for a fixed time measured from a start of the selected program.

62. (Amended) A system that provides programming selection from a menu, comprising:
a television delivery system that packages programming, wherein the programming package includes at least one program, generates menu information related to the programming, and provides the programming package and the menu information to subscribers, and wherein the menu information include menu data for interactive services and data services;
a terminal operably connected to the television delivery system, the terminal comprising:
a memory that stores the menu information;
a processor connected to the memory that processes the menu information to generate the menu, and
a control operably connected to the processor that provides program selection instructions to the processor; and
a display operably connected to the terminal that displays the menu and the programming, wherein the terminal switches to a channel carrying a program selected from the menu in response to a program selection instruction, the program selection instruction being a single control function.

63. The system of claim 62, wherein the channel is a virtual channel created by the terminal.

64. The system of claim 62, wherein the television delivery system provides menu templates to the terminal, the memory storing the menu templates, the processor generating the menus based on the menu templates and the menu information.

65. The system of claim 62, wherein the television delivery system provides the menu information as programming menus.

66. The system of claim 62, wherein the television delivery system includes an operations center.

67. The system of claim 62, wherein the television delivery system includes a cable television headend.

68. The system of claim 67, wherein the operations center transmits the menu information and the programming to the cable television headend, and wherein the cable headend inserts local programming into the programming package and local menu information into the menu information.

69. The system of claim 62, wherein the menu information includes date, time of day, channel and descriptive information for the at least one program.

70. The system of claim 69, wherein the descriptive information includes a program title, a program rating, and a program start time.

71. The system of claim 62, wherein the program selection instructions include highlight a desired program and select the desired program.

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72. The system of claim 62, wherein the control is a remote control, the remote control comprising:

cursor buttons operable to navigate the menu, to scroll the menu, and to highlight programs shown on the menu; and

a select button operable to select a desired program, wherein an operation of the select button completes the single control function.

73. The system of claim 72, wherein the remote control is one of an infrared control and a radio frequency control.

74. The system of claim 62, wherein the television delivery system updates the menu information based on programming package changes and provides the updated menu information to the terminal.

75. The system of claim 62, wherein the menu includes a video window, the video window used to display a video.

76. The system of claim 75, wherein the video is an advertisement.

77. The system of claim 76, wherein the advertisement is targeted to the terminal.

78. The system of claim 77, wherein the advertisement is targeted based on viewer profile information.

79. The system of claim 78, wherein the viewer profile information includes programs watched information.

80. The system of claim 78, wherein the viewer profile information includes viewer demographic information.

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cont. 81. The system of claim 62, wherein when the selected program is displayed, the selected program includes an overlay menu, the overlay menu including a connection to alternate programming.

82. The system of claim 81, wherein the alternate programming includes an online address.

83. The system of claim 62, wherein the programming package and the menu information are provided over a cable television cable.

84. The system of claim 62, wherein the programming package and the menu information are provided over a fiber optic cable.

85. The system of claim 62, wherein the programming package and the menu information are provided over a satellite broadcast and are received by a backyard satellite receiver.

86. The system of claim 62, wherein the programming package includes digital programs.

87. (Amended) An apparatus that provides for television program selection from a displayed menu, comprising:

a terminal that receives television programs and menu data related to the television programs, wherein the menu data include menu information for interactive services and data services;

a display coupled to the terminal that displays the menu data and the television programs;
and

a control that scrolls through the menu data, cursors through the menu data, and selects a desired television program from the television programs, wherein when the desired television program is selected, the terminal switches to a channel carrying the selected television program and the display displays the selected television program.

88. The apparatus of claim 87, wherein the television programs include digital programs.

89. The apparatus of claim 87, further comprising a backyard satellite receiver, wherein the television programs are received by the backyard satellite receiver.

90. The apparatus of claim 89, wherein the menu data is received by the backyard satellite receiver.

91. The apparatus of claim 87, further comprising a wireless modem, wherein the menu data is received by the wireless modem.

92. The apparatus of claim 87, further comprising a cable modem, wherein the television programs and the menu data are received by the cable modem.

93. The apparatus of claim 87, further comprising a fiber optic connector, wherein the television programs and the menu data are received by the fiber optic connector.

B2
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94. The apparatus of claim 87, wherein the selected television program includes one of a single event, a multiple event and a subscription.

95. The apparatus of claim 94, wherein the subscription includes a specialty channel subscription and a specialty program subscription.

96. The apparatus of claim 95, wherein the specialty channel subscription includes monthly and annual subscriptions.

97. The apparatus of claim 95, wherein the specialty channel subscription is a first-run movie channel subscription.

98. The apparatus of claim 95, wherein the specialty program subscription is a sporting event subscription.

99. The apparatus of claim 98, wherein the sporting event subscription includes a full season subscription and a partial season subscription.

100. The apparatus of claim 98, wherein the sporting event subscription includes a favorite team subscription.

101. The apparatus of claim 87, further comprising:
a processor; and
a memory coupled to the processor wherein the menu data is stored in the memory and wherein the processor processes the menu data to generate a television program menu.

102. The apparatus of claim 101, wherein the television program menu includes a video window.

103. The apparatus of claim 102, wherein the video window displays a program.

104. The apparatus of claim 103, wherein the program includes one of a still video and a moving video.

105. The apparatus of claim 103, wherein the program is text.

106. The apparatus of claim 103, wherein the program is related to the desired television program.

107. The apparatus of claim 87, wherein the channel is a virtual channel.

108. (Amended) An apparatus for selecting programs, comprising:

a receiver that receives programs and program control information related to the received programs, wherein the program control information include menu information for interactive services and data services;

a memory coupled to the receiver that stores the program control information;

a processor coupled to the receiver and the memory, the processor processing the program control information to generate a program menu, the program menu stored in the memory, wherein the program menu provides a list of available programs for viewing;

a display coupled to the processor that displays the program menu and the programs; and

a control coupled to the processor, the control providing program selection signals, wherein the program selection signals select a program for viewing on the display, the program selected from the list of available programs shown on the program menu.

109. The apparatus of claim 108, wherein the selected program includes one of a single event, a multiple event and a subscription.

110. The apparatus of claim 109, wherein the subscription includes a specialty channel subscription and a specialty program subscription.

111. The apparatus of claim 110, wherein the specialty channel subscription includes monthly and annual subscriptions.

112. The apparatus of claim 110, wherein the speciality channel subscription is a first-run movie channel subscription.

113. The apparatus of claim 110, wherein the speciality program subscription is a sporting event subscription.

114. The apparatus of claim 113, wherein the sporting event subscription includes a full season subscription and a partial season subscription.

115. The apparatus of claim 113, wherein the sporting event subscription includes a favorite team subscription.

116. The apparatus of claim 110, wherein the speciality channel subscription is a mini-pay subscription.

117. The apparatus of claim 109, wherein the subscription includes on line services.

118. The apparatus of claim 109, wherein the subscription includes data services.

119. (Amended) An apparatus for selecting programs, comprising:

a receiver that receives the programs and program information related to the received programs, wherein the program information include menu information for interactive services and data services;

a display that displays a program menu based on the program information; and

a control, operable to select a program for viewing, the program selected based on the displayed program information, wherein a program available for selection includes a subscription to a speciality channel, and wherein operation of the control starts the subscription to the speciality channel.

120. The apparatus of claim 119, further comprising:

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a memory coupled to the receiver, the memory storing the program information; and
a processor coupled to the receiver and the memory, the processor processing the
program information to generate the program menu, the program menu stored in the memory,
wherein the program menu provides a list of available programs for selection.

121. The apparatus of claim 119, wherein the speciality channel includes a mini pay.
122. The apparatus of claim 119, wherein the speciality channel is a first-run movie channel.
123. The apparatus of claim 119, wherein the speciality channel includes an on line service,
the on line service accessed through an Internet service provider.
124. The apparatus of claim 119, wherein the program available for selection further includes
a speciality program.
125. The apparatus of claim 124, wherein the speciality program includes one of a single event
and a multiple event.
126. The apparatus of claim 125, wherein the speciality program includes a sporting event.
127. (Amended) A method for selecting programs, comprising:
receiving programs and program information related to the received programs, wherein
the program information include menu information for interactive services and data services;
transmitting the menu information for the interactive services and the data services to
viewers;
displaying a program menu based on the program information; and
ordering a subscription to a program using a remote control, the program listed in the
program menu, wherein the subscription includes a subscription to a speciality channel.
128. The method of claim 127, wherein the subscription includes daily, monthly and annual
subscriptions.

B2
cond. 129. The method of claim 128, wherein the speciality channel includes a first-run movie channel.
